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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,630	08/19/2003	Said E. Abdelli	H0004227 US	7512

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EXAMINER

VO, NGUYEN THANH

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/644,630	Applicant(s) ABDELLI, SAID E.	
	Examiner Nguyen T. Vo	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 1-11 are objected to because of the following informalities: in claim 1, the recitation "second mixed signal terminals signal" at line 19 should be changed to -- second mixed signal terminals signal--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6-7, 22-23, 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Goddard (US 2004/0043741 A1, cited by examiner).

As to claims 1, 22, Goddard discloses in figure 1 a mixer circuit 100 comprising a first mixer stage (see numerals 106 and 110) comprising a first transmission gate (see transistors T1 and T2) and a second transmission gate (see transistors T5 and T6), wherein the first transmission gate is coupled with a first mixed signal terminal (see RF terminal) and first and second local oscillator (LO) signal terminals (see LO terminals), and the second transmission gate is coupled with a second mixed signal terminal (see RF terminal) and the first and second LO signal terminals (see LO terminals); a second mixer stage (see numerals 108 and 112) comprising a third transmission gate (see

transistors T3 and T4) and a fourth transmission gate (see transistors T7 and T8), wherein the third transmission gate is coupled with, the first transmission gate, the first mixed signal terminal (see RF terminal) and the first and second LO signal terminals (see LO terminals) so as to operate out of phase with the first transmission gate (see paragraphs [0017]-[0020]), and the fourth transmission gate is coupled with the third transmission gate, the second mixed signal terminal (see RF terminal) and the first and second LO signal terminals so as to operate out of phase with the second transmission gate (see paragraphs [0021]-[0024]); a first base band signal terminal (see paragraph [0016]) coupled with the first and second transmission gates; and a second base band signal terminal (see paragraph [0016]) coupled with the third and fourth transmission gates; wherein the mixer circuit 100 processes signals so as to provide for at least one of mixing a first base band signal communicated to the first and second base band signal terminals with a differential LO signal communicated to the first and second LO signal terminals to create a first mixed signal; and extracting a second base band signal from a second mixed signal communicated to the first and second mixed signal terminals signal using the LO signal communicated to the first and second LO signal terminals (see paragraph [0016]). Goddard thus discloses all the claimed limitations.

As to claim 6, Goddard discloses physical symmetrical orientations as claimed as shown in figure 1. In addition, Goddard discloses an integrated circuit (see paragraph [0001]).

As to claim 7, see Goddard, paragraphs [0017]-[0018].

As to claim 23, Goddard discloses transmission gate as claimed (i.e., a first transmission gate (transistors T1 and T2), a second transmission gate (transistors T5 and T6), a third transmission gate (transistors T3 and T4) and a fourth transmission gate (transistors T7 and T8)).

As to claim 28, Goddard discloses an integrated circuit (see paragraph [0001]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goddard.

As to claims 8-10, Goddard further discloses single ended mixed signal terminal (see paragraph [0041]). Goddard fails to disclose a balun device as claimed. However, such a balun device is known in the art in order to convert a signal-end mixed signal to differential signals such as differential RF signals and differential LO signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of conventional balun device to Goddard, in order to have a simple way of producing differential LO signals to the LO terminals in figure 1 of Goddard.

As to claim 11, Goddard fails to disclose that the mixer is an up converter for communicating the first mixed signal to a remote receiver as claimed. Those skilled in

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the art, however, would have appreciated that the mixer in Goddard could be either a down converter or an up converter depending on whether it is used in a receiver or a transmitter. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the mixer of Goddard as an up converter in a transmitter, in order to obtain the benefit of the mixer such as relatively high gain and fully integrated onto a silicon chip (as suggested by Goddard at paragraph [0007]).

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 11/144,343. Although the conflicting claims are not identical, they are not patentably distinct from each other because they all related to a passive

mixer comprising two mixer stages, wherein each mixer stage comprises two transmission gates in order to increase the linearity of the passive mixer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abdelli (US 2005/0221775 A1) discloses passive mixer with improved linearity.

Zhou (6,847,808) discloses linearity passive mixer.

Behzad (6,972,610) discloses linearity passive mixer.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T. Vo whose telephone number is (571) 272-7901. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen Vo

Nguyen Vo
2-3-2006

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PRIMARY EXAMINER